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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,917	11/21/2003	Toshihide Tsubata	1035-482	7569

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EXAMINER

SHERMAN, STEPHEN G

ART UNIT PAPER NUMBER

2629

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/717,917

Applicant(s)

TSUBATA ET AL.

Examiner

Stephen G. Sherman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3-29-05, 3-16-04, 12-29-05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. Figures 12 and 13 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

Page 2, lines 5-6 of the specification recite: "...such as an effective pixel area ratio (aperture ratio) has been being improved rapidly."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2, 4, 6, 8, 10, 13, 16 and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Mutsumi (JP 07-128685).

Regarding claim 1, Mutsumi discloses a display device substrate, comprising:

one or more pixel electrodes each of which is provided on each intersection of a signal line and a scanning line that are provided on an insulating substrate (Drawings 1 and 2 show that pixel electrode 3 is located at the intersection of scanning line 1 and a signal line 2, and are provided on substrate 9, where it is inherent that the substrate would be an insulating substrate.); and

an interlayer insulating film stacked between the signal line and the pixel electrode (Drawing 2 shows interlayer insulating film layers 12, 13 and 14, where layer 13 is between the signal line and the pixel electrode.), wherein

in view of a vertical direction with respect to a surface of the insulating substrate, the signal line is provided on an area on which the pixel electrode is not provided, and a gap is provided between the signal line and the pixel electrode (Drawings 1 and 2 shows that there is a gap between the signal lines 2 and the pixel electrode 3.).

Regarding claim 2, Mutsumi discloses the display device substrate as set forth in claim 1, wherein in view of the vertical direction with respect to the surface of the insulating substrate, (i) a surface of the signal line and (ii) the gap between the signal line and the pixel electrode are covered by a light shielding film (Drawings 1 and 2 shows that the light shielding film 8 covers the surface of signal line 2 and the gap between the signal line 2 and the pixel electrode 3.).

Regarding claim 4, Mutsumi discloses the display device substrate as set forth in claim 1, further comprising:

an active element provided on each intersection of the signal line and the scanning line (Drawings 1 and 2 and paragraphs [0003] and [0011] explain that the active region 10 is provided at a junction between the scanning lines 1 and signal lines 2.);

a light shielding film provided so as to cover at least a surface of the signal line among the signal line, the active element, and the scanning line (Drawings 1 and 2 show that light shielding film 8 covers the signal lines 2, the active element 10 and the scanning line 1.), wherein

in view of the vertical direction with surface of the insulating substrate, respect to the a gap between the pixel electrodes which are adjacent to each other with the signal line there between is covered by the light shielding film (Drawings 1 and 2 show that the gap between the pixel electrode 3 is covered by the light shielding film 8.).

Regarding claim 6, Mutsumi discloses the display device substrate as set forth in claim 1, further comprising:

an active element provided on each intersection of the signal line and the scanning line (Drawings 1 and 2 and paragraphs [0003] and [0011] explain that the active region 10 is provided at a junction between the scanning lines 1 and signal lines 2.); and

a light shielding film provided so as to cover at least a surface of the signal line among the signal line, the active element, and the scanning line (Drawings 1 and 2 show that light shielding film 8 covers the signal lines 2, the active element 10 and the scanning line 1.), wherein

in view of the vertical direction with respect to the surface of the insulating substrate, (i) the light shielding film which covers the surface of the signal line film and (ii) the pixel electrode overlap with each other (Drawings 1 and 2 show that the pixel electrodes 3 and the light shielding film 8 overlap each other.).

Regarding claim 8, Mutsumi discloses the display device substrate as set forth in claim 1, further comprising:

an active element provided on each intersection of the signal line and the scanning line (Drawings 1 and 2 and paragraphs [0003] and [0011] explain that the active region 10 is provided at a junction between the scanning lines 1 and signal lines 2.);

a contact hole for allowing the active element and the pixel electrode to be in contact with each other (Drawings 1 and 2 show that a contact hole electrically connects active portion 10 to pixel electrode 3, as explained in paragraphs [0003] and [0011].); and

a light shielding film provided so as to cover surfaces of the active element, the signal line, and the scanning line (Drawings 1 and 2 show that light shielding film 8 covers the signal lines 2, the active element 10 and the scanning line 1.), wherein

in view of the vertical direction with respect to the surface of the insulating substrate, (i) the light shielding film which covers the surface of the signal line film and (ii) the pixel electrode overlap with each other (Drawings 1 and 2 show that the pixel electrodes 3 and the light shielding film 8 overlap each other.).

Regarding claim 10, Mutsumi discloses the display device substrate as set forth in claim 1, further comprising:

an active element provided' on each intersection of the signal line and the scanning line (Drawings 1 and 2 and paragraphs [0003] and [0011] explain that the active region 10 is provided at a junction between the scanning lines 1 and signal lines 2.);

a contact hole for allowing the active element and the pixel electrode to be in contact with each other (Drawings 1 and 2 show that a contact hole electrically connects active portion 10 to pixel electrode 3, as explained in paragraphs [0003] and [0011].); and

a light shielding film provided so as to cover at least a surface of the signal line among the signal line, the active element, and the scanning line (Drawings 1 and 2 show that light shielding film 8 covers the signal lines 2, the active element 10 and the scanning line 1.), wherein;

the interlayer insulating film is a stacking body of two or more layers, and the light shielding film is stacked between an uppermost layer and a lowermost layer that constitute the made interlayer insulating film (Drawings 1 and 2 show that the interlayer insulating film is made of layers 12, 13 and 14, where the light shielding film is stack between the uppermost layer 14 and a lowermost layer 12.), and

in view of the vertical direction with respect to the surface of the insulating substrate, a gap between the pixel electrodes which are adjacent to each other with the signal line there between is covered by the light shielding film (Drawings 1 and 2 show that the gap between the pixel electrode 3 is covered by the light shielding film 8.).

Regarding claim 13, Mutsumi discloses the display device substrate as set forth in claim 1, further comprising:

an active element provided on each intersection of the signal line and the scanning line (Drawings 1 and 2 and paragraphs [0003] and [0011] explain that the active region 10 is provided at a junction between the scanning lines 1 and signal lines 2.);

a contact hole for allowing the active element and the pixel electrode to be in contact with each other (Drawings 1 and 2 show that a contact hole electrically connects

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active portion 10 to pixel electrode 3, as explained in paragraphs [0003] and [0011].);
and

a light shielding film provided so as to cover at least a surface of the signal line among the signal line, the active element, and the scanning line (Drawings 1 and 2 show that light shielding film 8 covers the signal lines 2, the active element 10 and the scanning line 1.), wherein:

the interlayer insulating film is a stacking body made of two or more layers, and the light shielding film is stacked between an uppermost layer and a lowermost layer that constitute the interlayer insulating film (Drawings 1 and 2 show that the interlayer insulating film is made of layers 12, 13 and 14, where the light shielding film is stack between the uppermost layer 14 and a lowermost layer 12.), and

in view of the vertical direction with respect to the surface of the insulating substrate, (i) the light shielding film which covers the surface of the signal line film and (ii) the pixel electrode overlap with each other (Drawings 1 and 2 show that the pixel electrodes 3 and the light shielding film 8 overlap each other.).

Regarding claim 16, Mutsumi discloses the display device substrate as set forth in claim 1, further comprising:

an active element provided on each intersection of the signal line and the scanning line (Drawings 1 and 2 and paragraphs [0003] and [0011] explain that the active region 10 is provided at a junction between the scanning lines 1 and signal lines 2.);

a contact hole for allowing the active element and the pixel electrode to be in contact with each other (Drawings 1 and 2 show that a contact hole electrically connects active portion 10 to pixel electrode 3, as explained in paragraphs [0003] and [0011].); and

a light shielding film provided so as to cover surfaces of the active element, the signal line, and the scanning line (Drawings 1 and 2 show that light shielding film 8 covers the signal lines 2, the active element 10 and the scanning line 1.), wherein:

the interlayer insulating film is a stacking body made of two or more layers, and the light shielding film is stacked between an uppermost layer and a lowermost layer that constitute the interlayer insulating film (Drawings 1 and 2 show that the interlayer insulating film is made of layers 12, 13 and 14, where the light shielding film is stack between the uppermost layer 14 and a lowermost layer 12.), and

in view of the vertical direction with respect to the surface of the insulating substrate, (i) the light shielding film which covers the surface of the signal line film and (ii) the pixel electrode overlap with each other (Drawings 1 and 2 show that the pixel electrodes 3 and the light shielding film 8 overlap each other.).

Regarding claim 19, Mutsumi discloses the display device substrate as set forth in claim 1, wherein the gap is set to be within a range of from not less than $1\mu\text{m}$ to not more than $20\mu\text{m}$ (It would be inherent that the gap between the pixel electrode 3 and signal line 2 taught by Mutsumi would be within a range of from not less than $1\mu\text{m}$ to not more than $20\mu\text{m}$.).

Regarding claim 20, Mutsumi discloses a liquid crystal display device, comprising the display device substrate as set forth in claim 1 (Paragraph [0001]).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 3, 5, 7, 9, 11, 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mutsumi (JP 07-128685) in view of Zhang et al. (US 6,396,470).

Regarding claims 3, 5, 7, 9, 11, 14 and 17, Mutsumi discloses the display device substrate as set forth in claims 2, 4, 6, 8, 10, 13 and 16.

Mutsumi fails to teach wherein the light shielding film is made of resin having an insulating property.

Zhang et al. disclose of a light shielding film made of resin having an insulating property (Column 12, lines 54-63 explain that the light shielding film shown in Figure 8 is an insulating black resin.).

Therefore it would have been obvious to "one of ordinary skill" ion the art at the time the invention was made that the light shielding film taught by Mutsumi be made of an insulating resin as taught by Zhang et al. in order to allow the light shielding film to be forming in a desired area without using a resist mask.

8. Claims 12, 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mutsumi (JP 07-128685) in view of Ejiri et al. (US 2001/0026342).

Regarding claim 12, 15 and 18, Mutsumi discloses the display device substrate as set forth in claim 10, 13 and 16.

Mutsumi fails to teach wherein the light shielding film is made of metal.

Ejiri et al. disclose of a light shielding film made of metal (Paragraph [0062] explains that the light shielding film 311 shown in Figure 3 could be formed of metal.).

Therefore it would have been obvious to "one of ordinary skill" ion the art at the time the invention was made that the light shielding film taught by Mutsumi be made of metal as taught by Ejiri et al. in order to allow the proper shielding of the signal lines such that cross-talk can be eliminated.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ejiri et al. (US 6,208,390) discloses of a display device (Figure 2) in which the pixel electrodes 151 are separated from the signal lines 115/117 by a gap when viewed in the vertical direction.

Kashimoto et al. (US 6,157,433) discloses of a display device (Figure 2) in which the pixel electrodes 36 are separated from the signal lines 32 by a gap when viewed in the vertical direction.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen G. Sherman whose telephone number is (571) 272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS

14 June 2006



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